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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,650	04/16/2004	Liang-Hua Yeh	TLC0001-US	8476

7590
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07/25/2007

EXAMINER

HOLTON, STEVEN E

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,650	Applicant(s) YEH, LIANG-HUA	
	Examiner Steven E. Holton	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 4/24/07. Claims 1-15, 17, and, 18 are currently pending in the application. An action follows below:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15, 17, and, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. (USPN: 6621489), hereinafter Yanagisawa, in view of Cho (USPN: 6081902) and further in view of Lee et al. (USPN: 7109965), hereinafter Lee.

Regarding claims 1, 9 and 14, the Examiner notes that they are related methods of operation and a related device. Therefore, the claims are considered together.

Yanagisawa discloses, "transmitting an image signal to the liquid crystal display (Fig. 3, element S12)" then transmitting a control signal to the display after turning off the image data transmission (Fig. 3, element S14). The Examiner notes that once the black image data is transmitted the display is instructed to hold the display information. Further Yanagisawa discloses using a timing controller to transmit the signals to the display (abstract, lines 4-18) and provides a display with a source driver (Fig. 1, element 2), a gate driver (Fig. 1, element 9) and thin film transistors at each pixel coupled to the

Art Unit: 2629

drivers (Fig. 1, element TFT). However, Yanigisawa does not expressly disclose turning off the backlight of the display before performing the writing of image data to the display device. Yanagisawa does disclose turning on an optional backlight during power-up operation (Fig. 4a; col. 7, lines 10-16) but does not discuss the timing of when a backlight is turned off during the power off sequence.

Cho discloses a power down sequence for a liquid crystal display device that first turns off the backlight of the display before performing other power off steps (Fig. 6, element S222; col. 5, lines 25-36).

At the time of invention it would have been obvious to one skilled in the art to modify the teachings of Yanagisawa with the teachings of Cho to provide a step of turning off the backlight system before performing further power down steps for a liquid crystal display. The motivation for doing so would be to save further operating power of the backlight and to reduce the occurrence of unwanted images on the display during the power down sequence, including the clearing signal transmitted by Yanagisawa to clear the display of images. A view would not need to see the clearing image transmitted to the display during the power off sequence and therefore, turning off the backlight would be an obvious choice to perform before the clearing image is transmitted. However, the backlight could be turned off at any time in the sequence because backlight operation does not affect the voltages of the liquid crystals and the clearing sequence could occur with the backlight on or off.

The combination of Yanagisawa and Cho do not disclose, "turning on a plurality of thin film transistors on the liquid crystal display after turning off the image data transmission to discharge residual charges."

Lee discloses turning on the gate lines of the display device after power is turned off to eliminate residual charge from the display device (abstract; col. 3, lines 36-42; col. 10, line 27 – col. 11, line 29).

At the time of invention it would have been obvious to combine the teachings of Yanagisawa and Cho with the teachings of Lee to produce a residual charge removal system for a liquid crystal display device. The system of Yanagisawa and Cho could be used to turn off the backlight and then transmit a clearing display image to the display device and then following power off of the display device the teachings of Lee would turn on the gate lines for a final time to remove any further residual charge. The motivation for the combination would be to provide a system to remove residual charge from a display and eliminate residual images after the shut off of the power supply of the display (Lee, col. 3, lines 18-22). Therefore, it would have been obvious to one skilled in the art to combine the teachings of Yanagisawa, Cho and Lee to produce a electronic display and related methods of operation as provided in claims 1, 9 and 14.

Regarding claim 2, Yanagisawa discloses the steps of operation as being used before a final power off of a liquid crystal display device (col. 7, lines 16-20; col. 8, lines 49-60). Also, Cho discloses a final step of turning off the voltage to the display (Fig. 6, element S226).

Regarding claim 3, Yanagisawa discloses transmitting the image signal as the last image to be transmitted. Therefore, the transmitted of the image signal is before turning off image data transmission. Also, it would be impossible to transmit an image signal after image data transmission is turned off, so a reverse order of the two steps would be nonsensical.

Regarding claim 4, Yanagisawa transmits control signals before turning off the display power. Again, it would be useless and nonsensical to transmit signals to a display after it has been turned off.

Regarding claims 5,6, 10, 11, 17, and 18, Yanagisawa discloses transmitting a black image (Fig. 3, element S12). Yanagisawa further discloses that other image signals could be transmitted (col. 8, lines 56-60). Thus, transmitting a white signal to a commonly white LCD would be an obvious design choice for one skilled in the art.

Regarding claims 7, 8, 12, and 13, Yanagisawa discloses providing a source driver and a gate driver (Fig. 1, elements 2 and 9 respectively). Further, the drivers are used to turn on thin film transistors (Fig. 1, element TFT) which is a common method of operation for a liquid crystal display device. Lee also discloses a data driver (source driver) and a gate driver (Fig. 6, elements 30 and 20) and each pixel has a thin film transistor (Fig. 6, element MN) which operates the pixel.

Regarding claim 15, the first and second periods named in the claim are arbitrary groupings of time based on steps of the shut down process. Therefore, the steps of turning off the backlight and then transmitting a final image to the display from the

Art Unit: 2629

teachings of Cho and Yanagisawa can be considered a first period, and then turning off the transistors and then powering down the display can be considered a second period.

Response to Arguments

3. Applicant's arguments, see pages 5 and 6, filed 4/24/07, with respect to the rejection(s) of claim(s) 1-18 under 35 USC 103(a) have been fully considered and are persuasive in light of the amendments to the claims. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art in combination with previously presented prior art.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2629

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
July 22, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

